

153 Vermont St., N.E. Telephone AMherst 8-4973
Albuquerque, New Mexico

**Operating Instructions and Specifications
for VENUS Transmitter**



\$29.95

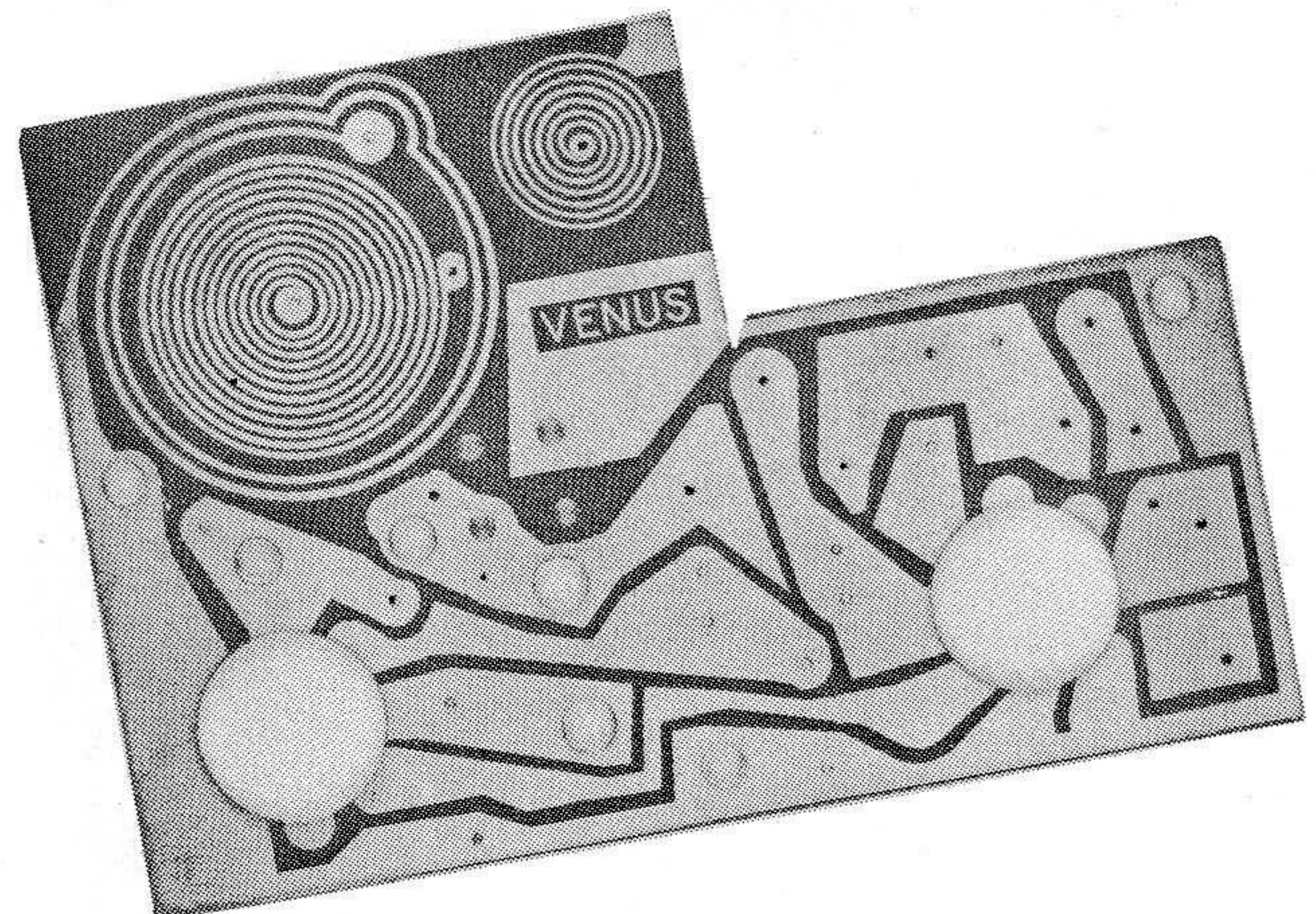
Complete with crystal

Extra Crystals \$4.95 Each

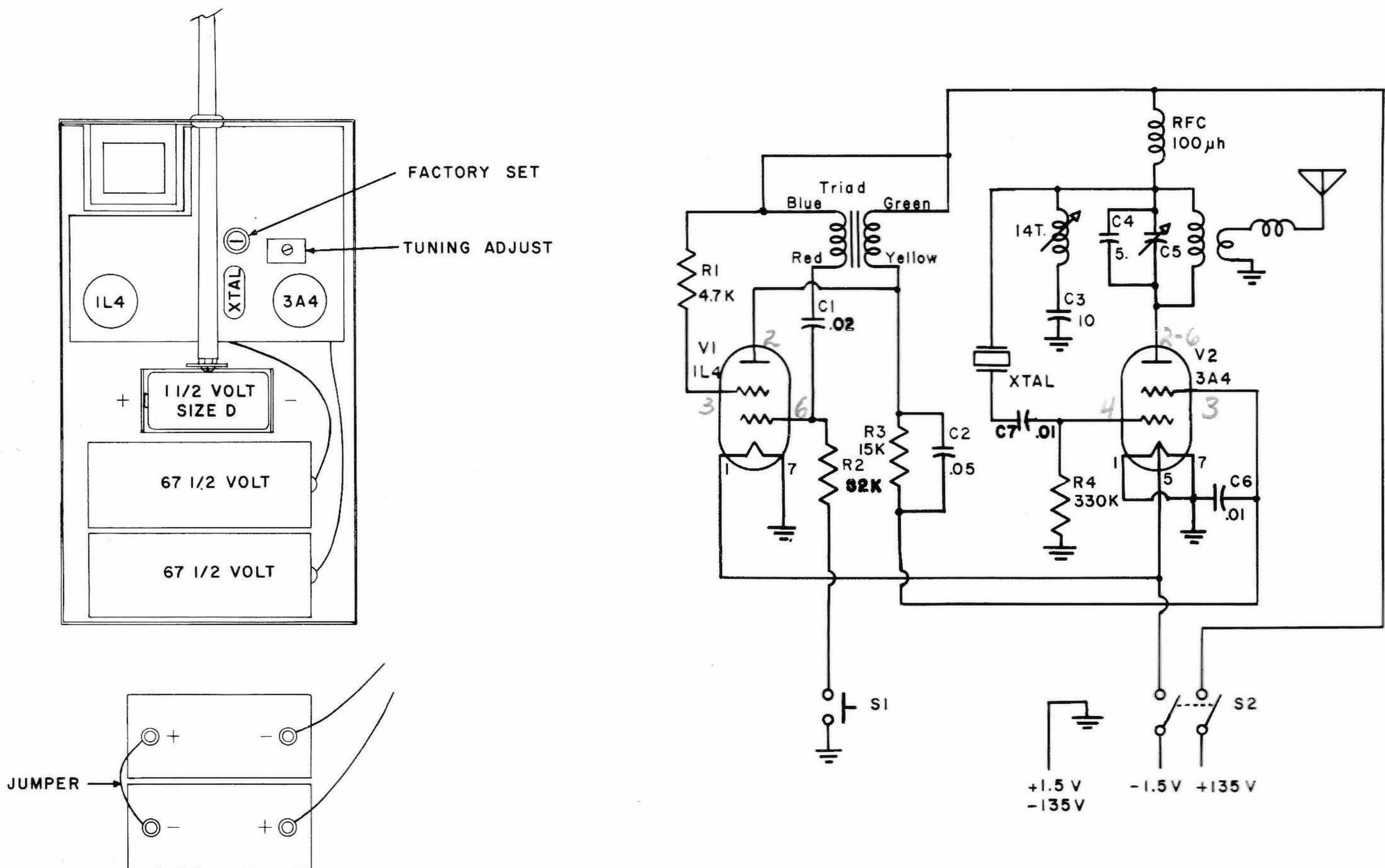
Introduction: The Venus is a high quality, efficient and reliable single-channel tone transmitter. It is a precision instrument, fully production engineered and thoroughly tested. Much more powerful than the famous and now superseded T-12, the Venus is backed by the many years experienced accumulated in manufacturing the T-12.

General Remarks: Federal Communications Commission Regulations (Part 19, Citizens' Radio Band, Revised 9/23/58) require that the frequency of the radio energy radiated be within 0.01% of the specified operating frequency for transmitters with less than 3 watts input. The Venus contains a crystal controlled fundamental Pierce oscillator operating at 1/3 the radiated frequency (9.085 mc for 27.255 mc output). The crystal is a fundamental type cut to 0.005% tolerance and meets military specifications. In addition, each crystal is checked in the Venus circuit to insure output specification compliance. The crystal is stamped with the oscillator's fundamental frequency. The transmitter's fundamental oscillator frequency is tripled in the same stage in the CG exclusive "Power Tripler". Thus, the Venus is a MOPA type of transmitter, fully meeting all FCC stability and frequency requirements. It must be pointed out that this is true ONLY when operated with CG crystals. Standard .005% crystals obtainable on the market are overtone types and will not be "on frequency" when used in this fundamental circuit. In addition, the CG crystal, a more rugged type, is made to withstand the "hi-drive" conditions encountered in the VENUS.

License Requirements: In order to lawfully operate the Venus, like all Citizens' Radio Band transmitters, the user must obtain an examination-free permit from the Secretary, FCC, Washington 25, D.C. The permit, Form #505, is a simple questionnaire requiring no radio technical knowledge.



Assembly: Remove the back of the transmitter and unpack the tubes and crystal. Insert these items in their proper sockets (see diagram). Insert the antenna (packaged and mailed separately) through the grommet on top of the case and thread it on the screw mounted on the antenna bracket. Install one large "D" size flashlight battery in the holder with the positive terminal to the left as the battery is inserted (see diagram). Install two 67-1/2 V. "B" batteries (see diagram), using jumper provided. Replace back and secure with screws.



Operation: Simply position the ON-OFF switch to the ON position and press the key as desired. For maximum radiated power, the antenna should be fully extended. Prolonged operation with the antenna collapsed or removed is not recommended. Operation for short periods with the antenna removed for receiver tuning is permissible. The batteries should be periodically checked. The "A" battery should be replaced when the voltage has dropped to 1.15 volts checked with the switch ON. The "B" batteries should be replaced when the voltage drops below 105 volts checked with the switch ON. The transmitter will operate quite normally, except for reduced power output, with the "B" supply as low as 30 volts. It is not uncommon to obtain one year's use from the "B" batteries powering the Venus.

Tuning: The Venus is pretuned at the factory and comes ready for operation. Under normal circumstances, this adjustment should never require resetting. Although not recommended, the transmitter may be tuned by using a field strength meter. Simply adjust the variable capacitor (not an external adjustment) for a maximum reading. Insure that the antenna is fully extended and that one hand remains on the case while the adjustment is rotated with the other. Use a plastic screw driver. The tuning adjustment affects only the radiated power, NOT the frequency. Installing the back cover will have no effect on the tuning; therefore, a tuning hole is unnecessary.

Specifications:

Type: Hand-held; easily carried and transported.

Case:

<u>Dimensions:</u>	<u>Material:</u>
Width - 4-5/8"	.040" aluminum, blue anodize
Depth - 3-3/32"	<u>Weight:</u>
Height - 8-3/32"	3-1/4 lbs. including batteries

Antenna: Telescoping, 58 inch chrome, removable. Antenna is fixed tuned for maximum efficiency.

External Adjustments: None

Circuit Components: Highest quality American-made.

Circuit Construction: Precision engineered printed circuitry - even to tank coil and antenna loading coil.

Operation Type: The Venus is an amplitude modulated, crystal controlled, Class "C" station with an input power of approximately 1.5 watts.

Power Requirements:

"B" Supply - two 67-1/2 volt batteries, series-connected to provide 135 volts. "B" current 10 ma rising to 14 ma keyed.

"A" Supply - one "D" size flashlight battery to provide 1-1/2 volts. "A" current 250 ma.

Stability: Better than FCC requirements under all conditions of temperature, battery voltage, and antenna loading.

Frequency: The Venus is designed for operation on any of the following Citizens' Radio Band frequencies allocated by the FCC: 26.995 mc, 27.045 mc, 27.095 mc, 27.145 mc, 27.195 mc, and 27.255 mc. Unless a different frequency is specified with order, the standard frequency of 27.255 mc will be supplied. Operating frequencies may be changed simply by changing crystals. No retuning is normally required. Extra crystals are available on any of the above frequencies at \$4.95.

Modulation: The Venus is tone modulated by approximately 500 cps at 95%.

Pulse Operation: The Venus may satisfactorily be pulsed in excess of 15 pps.

Warranty and Repair Service: Our standard written 30-day warranty card is enclosed with each unit. F & M Electronics, Inc. maintains a fully trained staff of specialists for the prompt repair of CG equipment. All repair charges are itemized and nominally priced.

C E R T I F I C A T I O N O F C O M P L I A N C E

F & M Electronics certifies that this piece of transmitting equipment meets with all requirements as required by the FCC in Part 19 - Citizens Radio Service of their regulations. F & M further certifies the equipment to meet the amended regulations of Part 19 - Citizens Radio Service. This certification is required on ALL transmitters after November 15, 1959.

N O T I C E

ALL TUNING CONTROLS OF THE TRANSMITTER ARE SEALED WITH COLORED LACQUER. IT IS UNLAWFUL TO ADJUST THESE TRANSMITTERS UNLESS YOU HOLD A FIRST OR SECOND CLASS COMMERCIAL LICENSE, OR SOMEONE HOLDING THE COMMERCIAL LICENSE SUPERVISES AND ACCEPTS THE RESPONSIBILITY FOR THESE ADJUSTMENTS.

The CG R/C Transmitters are tuned and adjusted at the factory and are guaranteed to be tuned for optimum performance. This Certification applies only when using CG R/O fundamental type crystals.

ALL GUARANTEES ON THIS EQUIPMENT ARE VOID IF THE LACQUER ON ANY ADJUSTMENT IS BROKEN OR SHOWS EVIDENCE OF AN ATTEMPT TO TUNE THE EQUIPMENT.

This Certification is required by the FCC and is your responsibility to retain it with your equipment.

By: F & M Electronics, Inc.
153 Vermont NE
Albuquerque, New Mexico